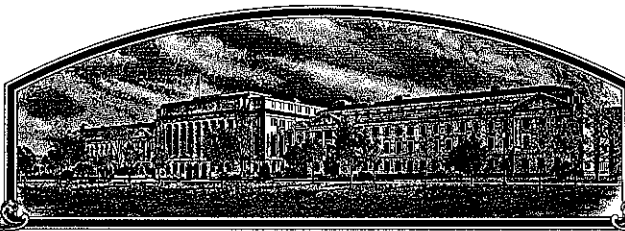


No.

8900267



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Adolph Coors Company

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEED OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PERMITTED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'Idagold'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D.C.
this 29th day of January in
the year of our Lord one thousand nine
hundred and ninety-three.

Attest:

Kenneth Howard
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Esmy
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Adolph Coors Company		2. TEMPORARY DESIGNATION AC82-117-11		3. VARIETY NAME Idagold 22 Jan 1993 ^{AAA}	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) Golden, Colorado 80401		5. PHONE (Include area code) 303-277-2113		FOR OFFICIAL USE ONLY PVPO NUMBER 8900267	
6. GENUS AND SPECIES NAME Hordeum vulgare L.		7. FAMILY NAME (Botanical) Gramineae		FILING DATE July 14, 1989 TIME 1:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.	
8. KIND NAME 2-row Spring Malting Barley		9. DATE OF DETERMINATION August 15, 1985		AMOUNT FOR FILING \$ 2150.- DATE July 14, 1989	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				AMOUNT FOR CERTIFICATE \$ 250.00 DATE Jan. 19, 1993	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Colorado				12. DATE OF INCORPORATION June 12, 1913	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Bruce G. Klaas KLAAS & LAW 738 Pearl Street Denver, Colorado 80203 PHONE (Include area code): 303-837-1616					

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

- a. ☒ Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.)
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)

☒ Yes (If "Yes," answer items 16 and 17 below) ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☒ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☒ Foundation ☐ Registered ☒ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ Yes (If "Yes," give date)☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☐ Yes (If "Yes," give names of countries and dates)☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF APPLICANT

DATE

John K. Coors
Vice President, Brewing

7-5-89

8900267

~~AC82-117-11~~

'Idagold'

AAA 22 Jan 1993

Exhibit A

Origin and Breeding History of the Variety

Variety Designation - AC82-117-11

I. Genealogy

Cross breeding was performed by Berry J. Treat and Paul Krumm on February 18, 1982, in the Adolph Coors Company's Golden, Colorado greenhouse.

Origin - AC78-020 (female) x Triumph (male)

AC78-020 - parentage is: Moravian III x Summit

Breeders: Bruce Waag and Berry J. Treat, Adolph Coors Company, Golden, Colorado.

Triumph - parentage is: Diamant x Hadm Stamm 14029/64/6

Breeder: VEB Saat-und-Pflanzgut, German Democratic Republic

~~AC82-117-11~~

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Exhibit A - continued -- page 2II. Selection

1. Seventeen seeds were harvested and planted back in the greenhouse and bulk harvested for two generations during 1982 and 1983.
2. F_3 bulk seed was space-planted in the field at the Coors Malting Barley Research Station, Burley, Idaho, in the spring of 1984. A total of sixteen head selections were made.
3. Sixteen F_4 head selections were planted in October, 1984, in New Zealand for seed increase and were harvested separately in February, 1985.
4. F_5 head row seed was grown in 16 separate field observation plots at the Coors Malting Barley Research Station, Burley, Idaho, in the spring of 1985. The barley line designated AC82-117-11 was selected from the trial for seed increase, advanced testing and evaluation.
5. F_6 seed of AC82-117-11 was planted in regional variety trials at Burley, Idaho, Berthoud, Colorado, and Center, Colorado, during 1986.

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Exhibit A - continued -- page 3

Agronomic and malting performance data was collected.

6. F₇ seed heads were selected from the trials in Burley, Idaho, and planted in 11 head rows in New Zealand during the winter of 1986. Off-types were rogued from rows. Rows were harvested separately.
7. F₈ seed was space-planted in 11 individual rows at the Coors Malting Barley Research Station, Burley, Idaho, in 1987. Off-types were rogued from the field. Ten rows appeared uniform and alike and were bulk harvested as pure Breeders Seed.
8. F₉ AC82-117-11 Breeders Seed was replanted at Burley, Idaho, in 1988 for malting and brewing evaluations. Seed stocks will continue to be maintained at this location.

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Addendum to Exhibit A

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~~AC82-117-11~~ is uniform and stable. Also, ~~AC82-117-11~~

has no variants.

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AC82-117-11

'Idagold'

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Exhibit B

Novelty Statement

AC82-117-11 is a short midseason two row spring barley type. Early seedling growth is semiprostrate. It tillers similar to Triumph producing many more tillers per plant than AC78-020. It matures at the same rate as Triumph and is 6 days later than AC78-020. Plant height is 10 cm shorter than Triumph and 25 cm shorter than AC78-020. It exhibits considerable lodging resistance. The head and kernel characteristics are similar to Triumph. The neck is short and snakey. The plant has a characteristically dull grayish green color, similar to Summit. The seed is short to midlong and has a wrinkled hull and white aleurone color. Kernel size is 5% larger than Triumph.

AC82-117-11 is 4% higher yielding than Triumph when data from 3 locations was averaged over three years of replicated variety trials (1986-1988). Grain protein content is the same and lodging was 10% less than Triumph. Germination energy is much stronger than Triumph and it exhibits much less dormancy after harvest. Malting characteristics are generally similar to Triumph.

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~~AC82-117-11~~

Exhibit D

B AAA 4 Sept 1992
per letter

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Additional Description of Variety

Novelty is based on the unique combination of the following characteristics:

AC84-117-11 most closely resembles Triumph barley, except it does not exhibit prolonged seed dormancy after harvest, it is 10 cm shorter in plant height, is less prone to lodging, has a larger kernel size and is 4% higher yielding than Triumph. Color at boot stage is a dull grayish green similar to Summit. Triumph is a bright green color. Rachilla hairs are more pronounced and bushier. The malt produced from AC82-117-11 is higher in extract yield, higher in enzymatic activity, more friable and generally superior to Triumph.

Addendum to Exhibit B

TABLES B-1 to B-2 listed below present clear, ^{Idagold, ASA, 22 Jan 1993}
 quantitative differences between ~~AC82-117-11~~ and Triumph
 (closest variety to AC82-117-11). These differences involve
 a number of important and substantial items as follows:

TABLE B-1

VARIETY	YIELD (lb/acre)	LODGING %	ALPHA %	Dp %	GERM ENGY %	FRIABILITY%
AC82-117-11	5644	8	36	117	89	77
Triumph	5380	12	30	84	58	61
=====	=====	=====	=====	=====	=====	=====
LSD(0.05)	523	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
=====	=====	=====	=====	=====	=====	=====

(N/A) = NOT AVAILABLE

TABLE B-1 involves an average of data received from tests conducted in Northern Colorado, Southern Idaho, and Eastern Idaho over a two year period (1987 - 1988). This data clearly illustrates substantial quantitative differences between AC82-117-11 and Triumph, and provides complete support for allowance of the present application.

As presented above in TABLE B-1 (and in all other TABLES herein including B-2), the following definitions shall apply:

1) Alpha % = The percentage amount of alpha-amylase enzyme in the kernels which is an important factor in the malting process used to make brewed beverages (e.g. beer and ale).

2) Dp % = The diastatic power which basically involves the amount of beta-amylase enzymes in the kernels.

This is also an important factor in the use of barley to produce brewed beverages.

3) Germ Energy % = The results received from a standard test involving germination. Specifically, germ energy % involves the percentage of kernels which germinate after 48 hours when 100 kernels wrapped in absorbent paper (e.g. filter paper) are placed in a sample tray having 5 ml of water added thereto. Germ energy is basically an indication of barley dormancy, and high germ energy values are a requirement of all malting barley varieties. Non-germinated or undermodified grains cause slow brewhouse conversions and mash filtration problems.

4) LSD(0.05) = A common statistical analysis term known as "least significant difference". LSD(0.05) values for various characteristics (e.g. Yield, etc.) are presented when available in the last line of the TABLE B-1 and in the last line of each TABLE presented herein.

5) Friability % = A physical measurement of how thoroughly the malting process has transformed the starchy seed endosperm into soluble sugars, starches, essential brewing enzymes and nutrients. It is an indirect measure of the degree of malt modification. A high value is desirable to the maltster and brewer.

6) Plump Kernels = The number of kernels out of 100 which will not pass through a screen in which each opening therein has a width of 6/64 in. Large, plump kernels of even size and uniformity are desirable in the brewing process. Not only is uniform size important to ensure even

germination during malting, but breweries require uniformity in size for proper grinding prior to brewing. Variances in size, especially with respect to small kernels, result in incomplete or unevenly malted kernels which, when milled, can have adverse effects on brewing characteristics.

TABLE B-2 is presented as follows:

TABLE B-2

VAR.	YIELD (Bu/acre)		PLUMP KERNELS	LODGING %	PLANT
	TEST 1	TEST 2			HT (IN)
AC82-117-11	151.2	163.1	84	30	27
TRIUMPH	140.3	132.8	76	40	30
LSD(0.05)	18.5	33.3	(N/A)	(N/A)	(N/A)

(N/A) = NOT AVAILABLE

TABLE B-2 involves data obtained from two separate tests conducted in Rupert, Idaho (Test 1) and Kimberly, Idaho (Test 2) during 1991 by the University of Idaho Department of Plant and Soil Science. Separate yield values for each test are shown in TABLE B-2. Data values for the other items in TABLE B-2 (e.g. Plump Kernels, Plant Height, etc.) are presented as averages of values obtained from both tests.

TABLE B-2 provides convincing evidence regarding substantial differences between AC82-117-11 and Triumph. This evidence, in combination with the evidence presented in TABLE B-1 clearly supports allowance of the present application and justifies the classification of AC82-117-11 as a separate and distinct variety.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Adolph Coors Company

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)

Golden, Colorado 80401

FOR OFFICIAL USE ONLY

PVPO NUMBER

8900267

VARIETY NAME OR TEMPORARY
DESIGNATION

AC82-117-11

'Idagold'
Add 22 Jan 1993

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (i.e. or) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 - SPRING 2 - FACULTATIVE WINTER 3 - WINTER Early Growth: 1 - PROSTRATE 2 - SEMIPROSTRATE 3 - ERECT

2. MATURITY (50% Flowering):

1 - EARLY (California Mariout) 2 - MIDSEASON (Betzes) 3 - LATE (Frontier)

No. of days Earlier than 1 - BETZES 2 - CALIFORNIA MARIOUT 3 - CONQUEST 4 - DICKSON

No. of days Later than 5 - PIROLINE 6 - PRIMUS 7 - UNITAN

3. PLANT HEIGHT (From soil level to top of head):

1 - SEMIDWARF 2 - SHORT (California Mariout) 3 - MEDIUM TALL (Betzes) 4 - TALL (Conquest)

Cm. Shorter than 1 - BETZES 2 - CALIFORNIA MARIOUT 3 - CONQUEST 4 - DICKSON

Cm. Taller than 5 - PIROLINE 6 - PRIMUS 7 - UNITAN

4. STEM:

Exsertion (Flag to spike at maturity): 1 - 0 - 3 cm. 2 - 3 - 10 cm. Anthocyanin: 1 - ABSENT 2 - PRESENT
3 - 10 - 15 cm.

NO. OF NODES (Originating from node above ground)

Collar Shape: 1 - CLOSED 2 - V-SHAPED 3 - OPEN Shape of Neck: 1 - STRAIGHT 2 - SNAKY
4 - MODIFIED CLOSED OR OPEN 3 - OTHER (Specify)

5. LEAF:

Basal leaf sheath (seedling): 1 - GLABROUS 2 - PUBESCENT Position of flag leaf (at boot stage): 1 - DROOPING 2 - UPRIGHT

Waxiness: 1 - ABSENT (Glossy) 2 - SLIGHTLY WAXY MM. WIDTH (First leaf below flag leaf)
3 - WAXY

CM. LENGTH (First leaf below flag leaf) Anthocyanin in leaf sheath: 1 - ABSENT 2 - PRESENT

6. HEAD:

Type: 1 - TWO-ROWED 2 - SIX-ROWED Density: 1 - LAX 2 - ERECT (Not dense)
3 - ERECT (Dense)

Shape: 1 - TAPERING 2 - STRAP 3 - CLAVATE Waxiness: 1 - ABSENT (Glossy) 2 - SLIGHTLY WAXY
4 - OTHER (Specify) 3 - WAXY

Lateral Kernels Overlap: 1 - NONE 2 - AT TIP Rachis (Hair on edge): 1 - LACKING 2 - FEW 3 - COVERED
3 - 1/4 - 1/2 OF HEAD

7. GLUME:

Length: 1 - 1/3 OF LEMMA 2 - 1/2 OF LEMMA Hairs: 1 - NONE 2 - SHORT 3 - LONG
3 - MORE THAN 1/2 OF LEMMA

Hair covering: 1 - NONE 2 - RESTRICTED TO MIDDLE 3 - CONFINED TO BAND 4 - COMPLETELY COVERED

Awns: 1 - LESS THAN EQUAL TO LENGTH OF GLUMES 2 - EQUAL TO LENGTH OF GLUMES
3 - MORE THAN EQUAL TO LENGTH OF GLUMES

Awn Surface: 1 - SMOOTH 2 - SEMISMOOTH 3 - ROUGH

8. LEMMA:

- 5 Awn: 1 - AWNLESS 2 - AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
3 - SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 - SHORT (less than equal to length of spike)
5 - LONG (longer than spike) 6 - HOODED
- 4 Awn Surface: 1 - AWNLESS 2 - SMOOTH 3 - SEMISMOOTH 4 - ROUGH
- 1 Teeth: 1 - ABSENT 2 - FEW 3 - NUMEROUS 1 Hair: 1 - ABSENT 2 - PRESENT
- 1 Shape of base: 1 - DEPRESSION 2 - SLIGHT CREASE 2 Rachilla Hairs: 1 - SHORT 2 - LONG
3 - TRANSVERSE CREASE

9. STIGMA:

- 2 Hairs: 1 - FEW 2 - MANY

10. SEED:

- 2 Type: 1 - NAKED 2 - COVERED 1 Hairs on Ventral Furrow: 1 - ABSENT 2 - PRESENT
- 2 Length: 1 - SHORT (8.0 mm.) 2 - SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 - MIDLONG (8.5 - 9.5 mm.)
4 - MIDLONG TO LONG (9.0 - 10.5 mm.) 5 - LONG (10.0 mm.)
- 4 Wrinkling of hull: 1 - NAKED 2 - SLIGHTLY WRINKLED 3 - SEMIWRINKLED 4 - WRINKLED
- 1 Aleurone Color: 1 - COLORLESS (White or Yellow) 2 - BLUE
- 0 1 PERCENT ABORTIVE 4 6 GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- 0 SEPTORIA 0 NET BLOTCH 0 SPOT BLOTCH 0 POWDERY MILDEW
0 LOOSE SMUT 0 BACTERIAL BLIGHT 0 COVERED SMUT 0 FALSE LOOSE SMUT
0 STEM RUST 0 LEAF RUST 0 SCAB 0 SCALD
0 AY 0 BSMV 0 BYDV 0 OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)

- 0 GREEN BUG 0 ENGLISH GRAIN APHID 0 CHINCH BUG 0 ARMYWORM
0 GRASS HOPPERS 0 CEREAL LEAF BEETLE 0 OTHER (Specify)
HESSIAN FLY RACES } 0 GP 0 A 0 B 0 C
0 D 0 E 0 F 0 G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- 0 DDT 0 OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Triumph	Seed size	Triumph
Leaf size	Triumph	Coleoptile elongation	Triumph
Leaf color	Summit	Seedling pigmentation	Summit
Leaf carriage	Triumph		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

8900267

~~AC82-117-11~~

'Idagold'
AAA 22 Jun 1993

Exhibit E

Statement of the Basis of Applicant's Ownership

The applicant, Adolph Coors Company, is the employer of the plant breeders Berry J. Treat and Paul Krumm. By agreement with its employees, the Adolph Coors Company is owner of all novel subject matter derived from the efforts of its employees. Novel subject matter so owned includes the Application for Plant Variety Protection Certificate and the subsequently-issued Certificate.